The role of the Actuary in the Economy and in the Financial Sector

Yangon, Myanmar
14 July 2014

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What is an Actuary?

An actuary is a professional person who applies mathematical skills to financial, business and social problems, especially those which involve uncertain future events.
Actuaries make financial sense of the future
The Actuary - a brief history

- Roman origins of name (*actuarius*)
- actuary of the Society for Equitable Assurances
- William Morgan, 1775-1830
- John Finlaison, government actuary 1822-1851
- Institute of Actuaries, London, 1848
- International Actuarial Association (IAA), 1895
- new constitution of the IAA, 1998
- association of professional associations
Actuarial Training

- mathematics
- statistics
- economics and financial economics
- finance and financial mathematics
- modelling
- investment and asset/liability management
- financial management
- enterprise risk management
- professionalism
Major Fields of Actuarial Work

- life insurance
- general insurance
- reinsurance
- pensions
- social security
- investment
- financial engineering
  - enterprise risk management
- health care financing
- corporate finance
- government service
- regulation
- personal financial advice
- expert witness
- education and research
What is a Profession?

6 key characteristics of a profession are:

• members join together to apply a specialised skill
• the skill has been developed through appropriate education
• members have a special relationship with those served
• recognised by the public as an authority in field of expertise, able to serve the public interest
• sets standards of competence and conduct of members
• high level of integrity by members in exercising judgement
How does the Profession serve the Public Interest?

• it ensures quality control of qualified actuaries through
  – initial qualifications and requirements
  – Continuing Professional Development
  – qualification standards or practising certificates
• it sets a code of conduct and technical standards
• it supports statutory roles by education and standards
• it investigates complaints against members
• it disciplines where there has been misconduct
Vision Statement of the IAA

The **vision** of the IAA is:

The actuarial profession is recognised worldwide as a major player in the decision-making process within the financial services industry, in the area of social protection and in the management of risk, contributing to the well-being of society as a whole.
Actuarial Skills

- mathematical modelling
- managing and communicating uncertainty
- evaluating financial consequences
- analysis and measurement of risk
- finance and financial economics
- scientific pricing and reserving techniques
- asset/liability management
- overall financial and risk management
- …within a professional framework
Principles of Professionalism

• Integrity
• Competence and care
• Impartiality
• Compliance
• Communication
Role of Actuary in Financial Institution - 1

- design and pricing of products
- profitability of products
- pricing guarantees and options
- reserving for liabilities
- estimating fair value for accounts
- embedded value for shareholders
Role of Actuary in Financial Institution - 2

- solvency analysis
- financial condition reporting
- surplus distribution (e.g. bonus)
- asset/liability management
- investment strategy
- reinsurance/securitisation
- enterprise risk management
The Actuary as Risk Manager

- actuary can advise on wide range of risks
- especially in insurance companies…
- …but also in other financial institutions
- modelling risk and uncertainty
- communicating risk to the Board
- enterprise risk management
Actuaries in Public Policy – 1

- financial services regulation and supervision
- design and financing of social security
- pensions policy, regulation and supervision
- public sector pension arrangements
- financing of health care and long-term care
- consumer credit
- modelling impact of demographic trends
Actuaries in Public Policy – 2

• assessment of compensation, e.g. for injury
• appraisal and financing of capital projects
• modelling catastrophes and epidemics
• assessing long-term liabilities, eg toxic waste
• implications of global warming
• evaluating costs associated with environmental damage
Actuarial Roles in Social Security

• demographic projections
• estimates of future benefit outgo
• estimates of future contribution income
• long-term projections of financial balance
• short/medium-term estimates of cash-flow
• development of funding strategies
Actuarial Advice for Government

- informal discussions with actuaries or the profession
- individual actuaries on government working parties
- consulting contracts
- actuaries employed by government departments
- shared actuarial services between departments
- government actuary’s office or department
UK Government Actuary’s Department

- independent source of actuarial advice
- carries weight with the industry
- interface with actuarial profession
- easier to recruit and retain actuaries
- available for all areas of government
Actuarial Roles in Defined Benefit Pensions

- scheme design
- advising on level of contributions
- funding and solvency management
- asset/liability management
- transfers and individual options
Actuarial Roles in Individual Account Pension Systems

- level of contributions needed
- expense disclosure
- pricing and reserving for guarantees
- asset/liability management
- pricing and reserving for annuities
- design of alternative draw-down methods
Actuaries in Investment

- portfolio management
- research and analysis
- portfolio performance measurement
- asset/liability management
- strategic asset allocation
- complex financial instruments
Actuaries in Health & Care

- projecting future costs
- design of financing mechanisms
- financing long-term care
- cost-benefit analysis of treatments
- financial appraisal of alternative strategies
- design of performance indicators
Corporate Finance

- appraisal of capital projects
- risk analysis and control
- innovative financing mechanisms
- performance indicators and measurement
Assessment of Damages in Courts

- value of loss of earnings
- value of dependency
- cost of care
- pension loss
- mitigation of loss of earnings
Other roles

- micro-insurance
- utility pricing
- mobile phone contracts
- managing carbon credits
- valuing all sorts of long-term liabilities
What does society gain from having an actuarial profession?

- access to specialist skills
- quality control of experts
- high standards of actuarial service
- integrity and objectivity in advice
- input into public debate
- support for statutory roles
Role of Actuarial Professional Body

• requirements for initial education
• qualification standards
• continuing professional development
• standards of practice
• interface with regulatory bodies
• promotion of the profession
• disciplinary framework
What makes a successful actuary?

• integrity and objectivity
• problem-solving ability
• comfortable with mathematics
• ability to see the broader picture
• good communication skills
• able to work with others in a team
How to become a good actuary?

• work hard and focus 100% on studies
• learn the principles thoroughly
• understand rather than memorise
• prepare well for exams and practise a lot
• answer the questions (read them carefully!)